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A
SHORT HISTORY
OF
BEES.

Edward Lamcross

Majd - given him by

his cousin W^m Hestitt

Testwood

July 27 1802

Edw^d Lamcross

A
SHORT
History of Bees.

IN TWO PARTS.

I.

THE NATURAL HISTORY OF BEES, WITH DIRECTIONS
FOR THE MANAGEMENT OF THEM, AN ACCOUNT
OF THEIR ENEMIES, &c. FROM
Forchamel de REAUMUR, &c.

II.

AN ENIGMATICAL ACCOUNT OF A NEIGHBOURING
NATION—THEIR QUEEN, HER PALACES,
ATTENDANTS, &c.

Commend not a man for his beauty ; neither abhor a man for his outward
appearance : the Bee is little among such as fly ; but her fruit is the chief of
sweet things. ECCLUS. ix. 23.

The Bee to look upon is a poor little brown fly ; with no beauty to make
us admire it : yet it is the wisest of all insects. JONES.

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1800.

SHORT
History of the

IN TWO PARTS.

THE NATURAL HISTORY OF THE WITH DIRECTIONS
FOR THE MANAGEMENT OF THEM, AND ACCOUNT
OF THE USES TO WHICH THEY ARE APPLIED.

AN ADDITIONAL ACCOUNT OF A NEW DISCOVERY
IN THE NATION—THE GREAT BRITAIN
AND IRELAND, &c.



LONDON:
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1753

PREFACE.

“THE Bee is an insect, the active industry of which hath long been converted by man to his own emolument; but with different degrees of profit, according to the nature of the climate that he inhabits. Endowed with a degree of instinct, that in some cases seems to approach towards reason, this little animal, if transported to a tropical region, where no vicissitude of climate is ever experienced; as it can there at all times find food in abundance from the flowers that constantly spring up around its habitation; is under no necessity of laying up stores for the winter: and, therefore, lives from day to day on what it collects

from abroad ; so as to disappoint the hopes of the possessor of the hive, if he wishes to make profit of the honey that they may have provided. But in polar regions, where the rigour of the winter is so great as to prevent this delicate insect from getting any food at that season in the fields ; with a wise forecast, it fills its hive in summer with a large store of food to supply its wants during that rigorous season ;—which man greedily seizes for his own purpose. In vain, therefore, would the inhabitants of equatorial regions hope to make profit of this surprizing insect : while those in a more northern climate may have a reasonable prospect of success. But this is not the only respect in which the climate has an effect upon this industrious and delicate creature. For, as it is benumbed by a moderate degree of cold, without being deprived of life ;

life; if the country in which it is placed does not experience a degree of cold sufficient to produce this effect; while, at the same time it is so intense as to kill the delicate flowers upon which it might feed; the animal is necessarily alive too long; in which state it must eat: and having thus in a short time consumed all its stores; it must inevitably perish for want of food before the approach of summer. But, if the cold of the winter be sufficiently intense and constant, it remains during the whole of that season in a lethargic torpor; in which state it has no occasion for sustenance of any sort: so that, when it is revived by the returning heat of the spring, it finds abundance of food still remaining in the hive to keep it alive and strong till the flowers spring up; and the season becomes mild: when it begins afresh the labours of the year.

Hence it appears evident that the climate of the continent; in which the heat of the summer and cold of the winter are alike intense and uninterrupted; is much better adapted to the rearing this useful insect than that of an island; where the heat in summer is less considerable, or the season more variable; and where the cold in winter is often interrupted by sudden gleams of heat, that frequently bring the bees to life long before it is safe for them to go abroad in search of food. For which reason, the inhabitants of Poland and Germany have naturally fallen into the practice of raising great quantities of honey and wax; which many in Britain have attempted with far less success.—Nor can it be expected that in our climate very great profits can be made of this insect.”

Lovers of their country have often expressed

pressed surprise and concern, that the inhabitants of Britain have been so little attentive to the article of bees: as many parts of this country abound with the proper * flowers, in as great abundance as on the banks of the Rhine; where innumerable bee-hives are kept in boats that move up and down the river; and furnish a plentiful subsistence for many families. But the foregoing observations explain the reasons of this neglect. Let us not, however, be discouraged by an inability to do *all* we could wish: but let us cultivate an useful branch of agriculture to such an extent as circumstances will allow, The plants on which the bee feeds, are not merely unimpaired by the loss of what the bee

* It would be well to have a list of the favorite flowers of bees: they are particularly fond of viper's bugloss.

takes from them ; but some naturalists suppose that vegetation is promoted by the diffusion of that fertilizing dust ; without which there would be no increase. At any rate they afford an harmless amusement—and lead us to admire the wisdom and bounty of providence*.

“ We borrow from beasts and cattle and creeping things of the earth, many of our best ideas of moral good and evil.

From the consideration of the wonderful instincts which are found in living creatures, it should be our earnest desire, and our highest ambition to have God for our teacher.

The bee designs with unerring skill what no geometrician could teach ; and measures its work in the dark. As a chymist, it has

* Swammerdam dissected the heart of a bee. The proboscis is a most wonderful piece of mechanism consisting of more than twenty parts.

the grand secret of transmutation ; extracting the sweetest of meat, from the most poisonous of herbs.

See how wise all these are And doth not God still give to man a sense, and a power superior to reason ; when He appears plainly to have given such a power to inferior creatures ? will not He still teach men ?—therefore, “ If any man lack wisdom, let him ask it of God.” Where shall the ant or the bee go, but to the Creator, to learn what no man can teach them ?—And whither shall man go, but to the same teacher ?”—*Jones.*

DIRECTIONS
FOR THE MANAGEMENT OF
BEEES.

FROM LATER AUTHORS THAN REAUMUR.

SITUATION.

“MOST persons chuse a wrong situation and aspect for placing their hives; making it their choice to fix them so as to front the noon-day sun. Now the gleams of sunshine in winter, especially in clear freezing weather, waken the bees from their natural torpid state; and tempt them to make excursions till the frost benumbs them.”

The author recommends a well-guarded situation to the north

north and east; and advises that the mouth of the hive should rather front the east, than the sun at noon-day; for in such a case, the bees would not be tempted, in bright winter days, to range abroad, nor be wakened so often out of their dosing state.—*Essays on Husbandry.*

HIVES.

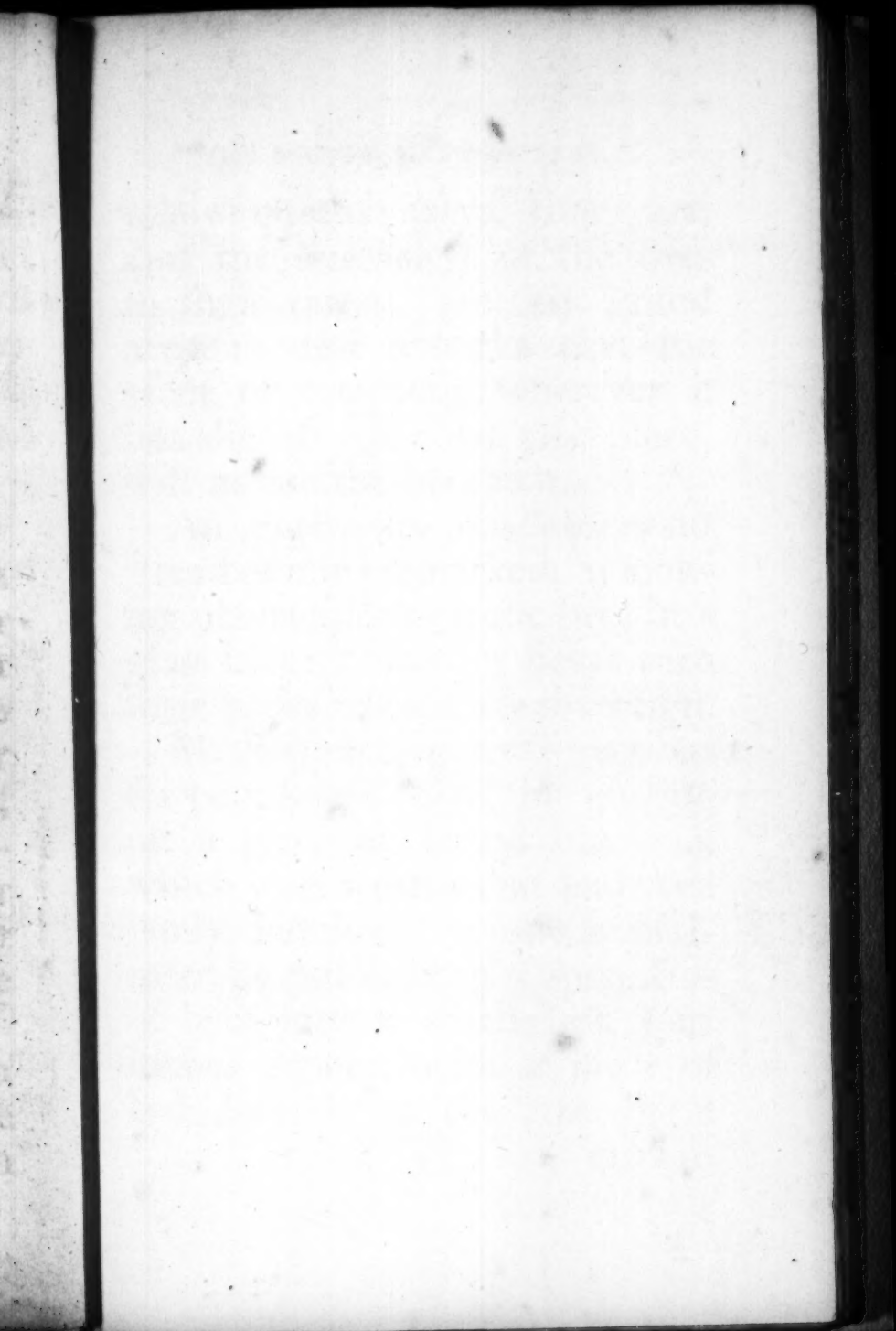
Wildman thinks straw hives preferable to any other habitations; because the straw is not so liable to be heated by the rays of the sun; and is a better security against the cold than any kind of wood or other material. He describes the hive and boxes of his own invention;

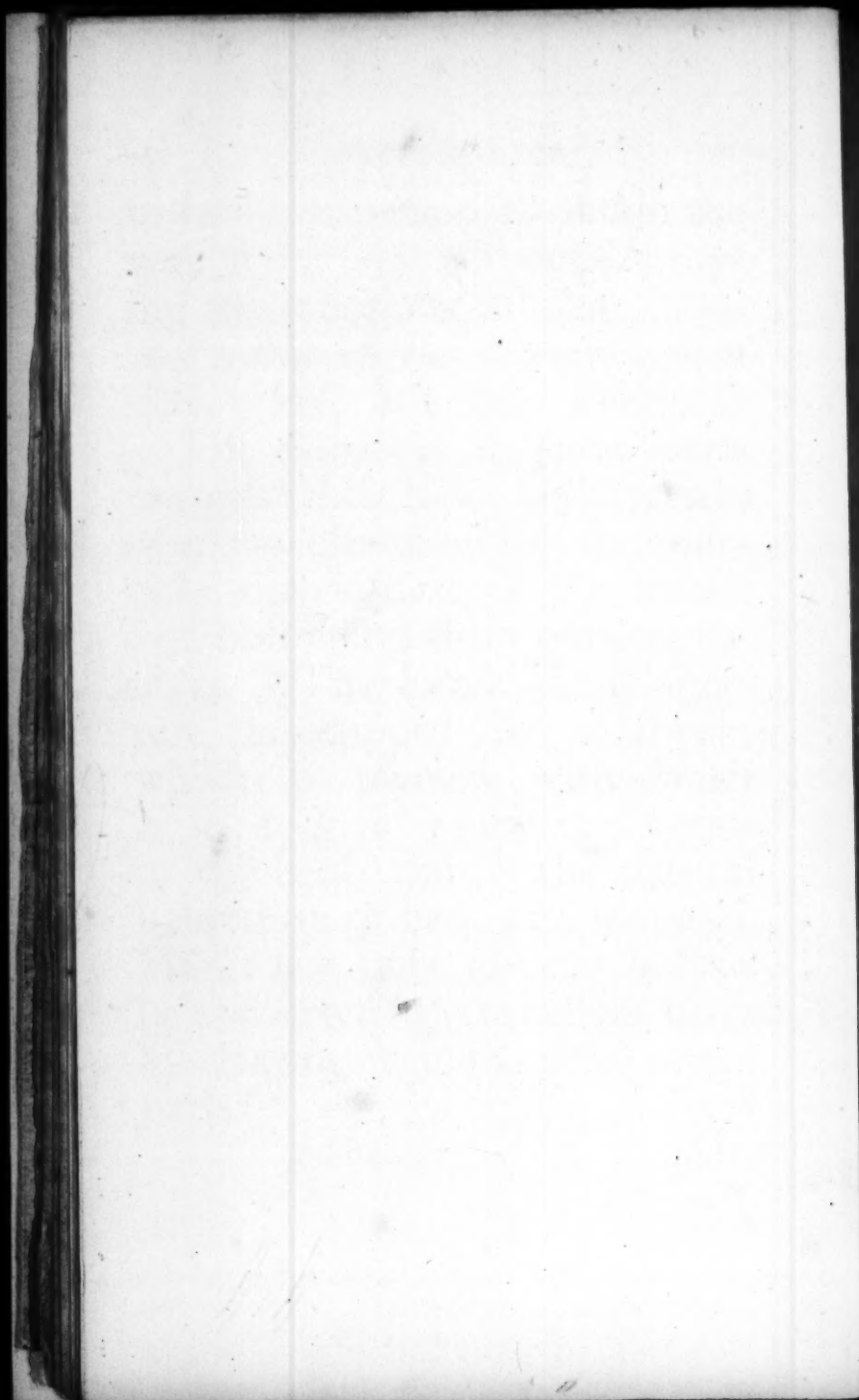
to enable a person to obtain the wax and honey, without destroying the laborious inhabitants.—

A Treatise on the Management of Bees. 4to. 10s. 6d. Cadell.

The Russians in some parts excavate their hives in the trunks of trees: choosing for this purpose the loftiest of the forest: and hollowing them out lengthways. The longitudinal aperture is stopped by a cover; which is pierced with small holes, to give ingress and egress to the bees; thus is the natural habitation of bees well imitated. Might not trees already hollow be converted into excellent hives by clearing them from the rotten parts?

Mr.





many queens: says, that *fear*, and the *attachment* of the bees to their queen, are his grand arcana: and remarks that the scent of her body, wherever it has slightly touched any place, will attach the bees to it.

An ingenious and observant friend of mine remarked, in making observations on the bees in a glass hive: that they never turn their backs upon their sovereign.

M. Schirach gives directions for peopling a hive, by cutting off a piece of brood comb in which were worms that had been lately hatched: in one experiment he put only two spoonfuls of bees into a small box four inches square, with a piece of brood-comb of the size of a crown-

crown-piece; containing worms of three days: that is the period most proper for producing a queen-bee. When eggs only are introduced into the box, the bees, in general, neither build a royal cell, nor take any measures to hatch them. Examining the box four days afterwards, the author found that this small and industrious colony had already nearly completed two royal cells—a certain indication that one or more queens were to be produced.

These experiments were made in the early months of the spring; and in any succeeding month; even so late as November: he fixed a piece of brood-comb (containing worms which had been

been hatched three days) together with a portion of honeycomb, &c.—or in other words, with a sufficiency of food, and building materials, or wax, for the intended colony. He then put in, and confined within the same box, a sufficient number of common working bees; taken from the same, or any other hive; after much confusion and consultation, they betake themselves to work: first proceeding to the construction of a royal cell: and then taking the proper measures to hatch and feed the brood contained in it. His experiment is curious and may be useful—although he mistook in some circumstances: as that the bees has the power to rear a queen

a queen from any worm.—*Histoire Naturelle de la Reine des Abeilles.*

From New Researches.

At a much later period it is remarked, that whereas, in the opinion of Schirach, all the honey or working bees, instead of being neutrals, are females in disguise, and would have become queen-bees, had they been, when in their worm-state, lodged, fed and educated for that purpose: the queen-bee is the only female of the hive.

There are three distinct kinds of eggs, which produce three distinct kinds of bees; the females; the males; and the neutrals; without any deviation. Their eggs are deposited at random

dom by the female in common cells ; and are placed afterwards in their respective ones ; generally speaking by the working bees. There are eggs, however, of all sorts, which remain in cells, that are not peculiar to them, from these the smaller kinds of queens and drones derive their birth ; by which arrangement the two kinds of drones are preserved ; and a new queen-bee may be obtained ; by placing one of these eggs in the royal cell ; when the old queen is separated from the swarm by any accident.

—*Mr. Needham concerning the Nature and Œconomy of Bees ; with practical Instructions adapted to improve this important Branch of Husbandry. 1780.*

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Nature and Economy of Bees;
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NATURAL HISTORY

OF
BEEES.

THE QUEEN.

THE eggs whence new bees are to take their rise are laid by the queen: the care of the maggots devolves upon the working bees.

The queen is easily distinguished from the rest, by the form of her body: she is longer, and more slender

der than the males: her wings are very short in proportion to her body; whereas the wings of common bees, and those of the males, cover their whole body; those of the female hardly reach beyond the middle, and end about the third ring.

The males or drones have no sting; they live on nothing but honey; whereas the working bees eat a good deal of coarse wax. The drones, not being formed for getting wax, or putting it to any use. Nature, who makes nothing in vain, has not given to them, as to the other bees, pallets, which may serve as baskets to bring wax to their hives; nor teeth jutting out, and proper to knead and fashion it.

it. The teeth of the drones are little, flat, and obscure; their trunk likewise is shorter and thinner: their eyes too are very different.

EYES.

The eyes of the males cover the top of all the upper, and under parts of the head; while those of the common bees only form a kind of oval cushion, or roll on either side. Insects have not perhaps any part more proper to shew us, with what prodigious magnificence nature has formed them: and to prove to us in general how many wonders she has wrought, which escape us.

The eyes of many insects appear to be cut facet-wise; like diamonds: Lewenhoeck computed 8181 upon the horny part of a beetle's eye; and upon each of those of a fly. Paget calculated 17325 upon each of those of a butterfly; they suppose each facet to be an eye; so that a butterfly must then have 34650 eyes. Curious persons have adjusted one of these to a microscope. A soldier appeared as an army of Lilliputians; a flambeau made a most magnificent illumination; yet we conclude that insects see objects single. The greatest part of flies have three other eyes; they are smooth, and have a triangular position on their head between the skull and

and neck: we may judge from this, that a fly, which walks on a plain, ought to see on several sides at once. The difference of the eyes in the same insect, and the several places bestowed on the one to the other, gives us room to suspect, and with some probability, that nature has favoured insects with eyes differently modified; with eyes proper to different purposes: some to discover objects at a distance, and others to see them when very near: microscopes and telescopes. A bee with eyes to view objects not only very near, but likewise in the darkness of a hive: it is likewise necessary for a bee to see afar off; for she sometimes wanders a

whole league from the hive, and returns without any hesitation: they may too represent the bulk in the proportion it bears with the body of the insect; either augmenting or diminishing. The hairs perhaps serve as our eye lids and lashes.

TEETH.

Two long jutting teeth are moveable: these are the instruments by means of which they perform those works most worthy of admiration; they are a kind of spoons; where hollow is on the inside.

LEGS.

LEGS.

The second and third pair of a bee's legs have a part which we call the *brush*: this part is square; its exterior surface is bare and smooth; its interior side is more charged with hair than our brushes.

WAX.

The dust which is found upon the anthers of flowers is rough wax: to collect which the bee enters the flower: this dust or rough wax adheres but slightly: the bristling hairs rub against this powder, and charge themselves with it; or if the powders be shut up in the capsula the bee employs

employs her salient feet to open it, and get thence that precious powder; with which all its hairs are instantly covered: some return in that state to the hive; some brush themselves: at times when they are weak you may be much entertained with seeing them; but in warm weather their motions are by much too quick to admit of observation. They have four brushes upon their four hinder legs, but two particularly large upon the hinder pair. The bee brushes herself, and collects the dust; rolling it up in a little mass, which is passed from the fore legs to the next; then piled up on the triangular pallet of their extreamest legs. The queen
 employs
 and

and the males have not this pallet, because they are not destined to gather wax. These pallets are a kind of basket capable of receiving a ball the size of a grain of mustard seed.

This *crude wax* is the powder of the stamina; the coloured powder which sticks to the fingers; the *real wax* is what the bees have made; such as we take from the hive: what is ductile and grows pliant with warmth; which the crude wax does not. The bee often rakes this material off from her legs with her teeth; grinds it, and swallows it before she returns to the hive: for it is in the body of the bee that it must be wrought.

STOMACHS.

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STOMACHS.

The bee has two stomachs, one for the honey, another for the wax; part of which is there converted into real wax, and deposited for use, and part converted into nourishment. Sometimes a bee enters the hive loaded with her two balls; when she summons to her assistance other bees, who take between their teeth small portions of these balls, which they swallow. When it is necessary to make a great number of cells the bees devour the wax; but at other times they lay down their burden of wax, and deposit it in store-houses. The same aperture at which this substance entered

entered when crude serves to discharge it when employed in working; when the bee employs both teeth and tongue in forming the cells; the tongue varying its form as occasion requires. The moment you have hived a swarm you will find a little comb of wax fixed to the place left by them on the tree: this came from their entrails: such bees as have wax (*wrought*) in their stomachs, are always eager to employ it: it seems to annoy them; and that they frequently build with no other design but to ease themselves of it. A new swarm once was confined two whole days to the hive by rain; and at the end of that time the bees had formed
a comb

a comb fifteen or sixteen inches long, and four or five thick.

The dust is of various colours: but new made comb is white; though it will turn yellow and even black from the vapours in the hive: the dust is swallowed, digested, cast up by the mouth, and is then a kind of paste or pulp; which, by drying, becomes wax.

BEE-BREAD.

Crude wax is by some called *bee-bread*: it is necessary to the working bees, who require more solid food than the males, who subsist entirely on honey: authors have called the latter

latter nectar; and the former ambrosia. The quantity which the bees consume, in order to support themselves, greatly exceeds that converted by them into wax.

It is computed that the bees in a large hive must gather above an hundred pound weight of this substance; yet not above two pound weight of true wax shall be found in it: so that the greatest part serves them as food.

The stomach is both kitchen and laboratory: it has been remarked that there are two: in one they transform crude wax; partly into food, and partly into wax properly so called. In the other the honey'd
 c substance

substance changes, in like manner, either into their own food, or into true honey. It is likewise in this laboratory that they make various kinds of paste or pappy substance, according to the different age of their younglings: and even pursuant to the dignity of persons: such as is made for the future queens being very different in taste from that of the ordinary kind.

TRUNK.

The trunk is as a second tongue; which may be called a hairy tongue (it being covered with a great number of bristles), to distinguish it from

from the fleshy tongue with which it forms the comb. With the trunk the bee gets the honey'd liquor, and carries it to the mouth; on the top of the hairy tongue the liquor passes; and the cases of the trunk are perhaps not so much made to cover it as to serve as so many edges or brims; and to form a canal for the conveyance of the liquor: when in a flower the honey is not sufficiently diffused, we suppose the bee to employ her strong jaws to squeeze open the bladders which contain the honey'd liquor. When this liquor by means of the trunk has passed into the stomach, and continued some time there, it comes out digested and con-

cocted; therefore thicker than the bee received it. The juice of flowers, thus converted into *true honey*, is returned over the trunk, issuing through the opening which we call the mouth. The bee can contract her stomach to throw out the honey; and several bees come one after another to disgorge what they have gathered and prepared, before the cell can be compleatly filled; there is a honey'd crust which makes a sort of lid till it is full; and then a small cover of wax is added.

The cells are strengthened round the circumference by a string or fillet of wax; they are at first made stronger than is requisite; then lessened,

sened, and pared away: this is left to other bees. In paring, the bee moves her teeth with prodigious swiftness, and scrapes the partitions, taking away minute fragments of wax, which look like chips: these she works up into a ball: she flies away, and takes it with her:—another does the same, &c.

The cells of the working bees are commonly five lines and a half in depth, and those of the worms or maggots, which turn to drones, eight lines, and sometimes less. When these cells are not necessary for bringing up worms, they turn them into store-houses for the honey: but some are appropriated to

this use only ; and these are deeper than the others ; some six lines in length. When the provision of honey is so great that the bees can scarcely get vessels enough to lodge it in, they either lengthen the old ones, or make the new ones longer than those built by them before.

Though such as bring crude wax sometimes swallow it by the way, they generally stay till they are arrived in the hive ; there to consign it to the toilers, who swallow this wax, and lodge it in their stomachs, in order for it to acquire the true quality of wax ; or else they themselves go and deposit it in store-houses, to use it on proper occasions. A bee who arrives

arrives with two pellets of wax, no part of which her companions have taken from her, enters an empty cell: and then with the extremity of both her middle feet, loosens the two little balls from her large hinder legs, and leaves them at the bottom of the cell.

The bee, the moment she has got rid of her two little burdens, either sets out instantly upon some new work, or hastens to those bees who are recruiting their strength by taking a deserved and necessary repose.

But scarcely are the two balls discharged in a cell, when another insect comes into it immediately, and sometimes makes a considerable stay there:

there: when she leaves the cell, we perceive how she has been employed; the two pellets are kneaded together in one mass or lump, and this is driven to the bottom of the cell, pressed or squeezed, and its surface smoothed.

Whenever we see two balls of crude wax in a cell, it is a certain sign that it is allotted for a small store-house; and is to be filled with such materials: and till it is full the bees come one after another, and unload their provision of crude wax, which other bees knead, squeeze, and stow up, after having diluted and bound it together with honey. Sometimes the insect who brings the

two

two pellets undertakes the doing of all this.

While these things are performing, other bees are employed in building of cells; some in repairing them; and others bring the pappy substance for the younglings, against the time when the eggs shall be hatched.

WORKING BEES.

We must not forget to rank among their employments, the care they have to keep the hive clean; to carry off their dead, and the filth of every kind; to drive away insects; to feed their younglings; to stop the cells, when the season for the worms to change

change into nymphæ is come; to clean them; to carry off their leavings after the nymphæ are transformed into bees; and to prop up or support such combs as seem to want mending; and lastly, to extirpate the males.

PROPOLIS.

The first work, when bees have taken possession of a hive, is to stop every crevice; this is done with a substance which they collect from trees; and which they employ as they find it, without being forced to make any change in it. It is thought to be from poplar, birch, and

and willow, that they collect it; it is called *propolis*, and is a substance easily dissolvable in spirits of wine and oil of turpentine; which grows very hard in the hive, but which may always be softened by heat: it commonly has an agreeable scent: it is soft when the bees use it to careen the hive. The bees will even work in the night at this. The bees choose the morning for gathering the crude wax; the evening for the *propolis*; but not exclusively. They bring this substance in their hinder legs; others tear it away, and pluck, with their teeth: it draws out like a thick gum.

Reaumur

Reaumur had a hive with a moveable stopper; this the bees sealed with their propolis: he removed it; and when it was replaced, some of the substance remaining on the outside, he had the pleasure to see the bees convey great part of it away. The bees cover with this substance such bodies as annoy them, and are beyond their power to remove: a snail which crept into the hive, was so treated.

In the beginning of a settlement they work at any hour from necessity: it is their business at these seasons to subsist, to lodge, to shelter themselves; and prepare repositories, and cradles, for their young, whose

whose birth is at hand; important works, which cannot admit of delay: accordingly, our insects spare no fatigue or pain; give mind and

In spring (this was written in France) the labourers work from morning to evening; no time is lost; that season being mild and favourable, the insects make a proper advantage of it; but as soon as the months of June and July are come, and the violent heats of summer begin to be felt, the greatest toil is from the dawn till about noon in the morning; though some few work in the hottest part of the day.

The dust on flowers remains moist in shady places even at noon; so
 D that

that some bees collect pellets at that time: when too dry, the substance will not work into a mass.

Some bring virgin wax to stop the chinks and crannies of the hive; others are freighted with honey; and the vessel in which they bring it is their own stomach. A bee does not always unload her honey in the cells; she frequently gets rid of part in the way: whenever they meet with some of their companions who want food, and had not time to go in quest of any, they halt, straiten and stretch out their trunk, in order that the aperture by which the honey issues may be a little beyond the teeth, and they force out the honey through
this

this opening; the other bee applying the extremity of her trunk to lap it up; some are unwilling to dispense, and are forced into it by biting. They often go to the workshop of the labourers, and offer them honey.

One sign that bees are pleased with the hive they are put into, is, when they ascend as high in it as they can; an indication that they design to fix there; this being the part where they usually build their first cells, and lay the foundation of their edifices.

Plaistering a hive spares the bees much trouble: it should be quite close, except the door; and if it be

not made so, as was before remarked, the bees bestow great pains in securing it with a substance which is not the same with which they compose their wax, but of quite a different kind; it has no need of being worked up; they find it ready prepared on plants: it is called *propolis*, which Reaumur thus defines:—

Propolis, a rosin, easy to be rolled out; which fixes itself more easily than wax; and has a good deal more tenacity: it requires no preparation at the time when the bees make use of it, it is soft, and as pliable as bitumen; used to cement the hive.

YOUNG.

YOUNG.

The common cells are perfect hexagons; double; the bottoms joined by little triangular panes.

The egg is hatched into a maggot, which lies rolled up in a ring: it lodges softly on a bed of whitish jelly; on which the little animal begins to feed. The working bees attend it with great care, furnishing it frequently with this whitish substance: when the worm has finished its growth, and has no farther need of food, the bees close the cell; and walling it in with wax, leave the worm to go through its metamorpho-

sis. The little creature weaves for itself a silken tapestry. Every worm before its transformation into an aurelia suspends its old skin: the same cell in one summer is often tenanted by three or four worms in succession; each worm thus fortifying the cell with her spoils, it becomes contracted, and is then used for honey.

When the young bee comes forth, the old ones clean it with their tongues:

SWARMS.

The too great number of bees in a hive may be a reason (among others) which prompts one colony to separate from the rest: yet this alone is not sufficient. Sometimes a part are forced

forced to keep without side, crouded together in form of a ball; and yet the hives produce no swarm, for want of their having a queen. Others, on the contrary, many parts whereof are empty and unoccupied, have often given swarms. If there be not a young mother qualified to bring forth one day a numerous posterity; though there be ever so great a number of bees, they yet will stay there, and die sooner than quit the place.

Reaumur drowned several hives, in which the swarms could not be forced out by any means; and found there was but *one* mother: he says, therefore, no young one to lead forth the colony. *Later writers remark,*
that

that the old queen goes forth with the first swarm, which makes the early ones so superior to any other: still the want of a second had the same effect.

The presence of an alien mother will suffice to orphan bees in lieu of a true one; and even the hope of seeing a mother from among themselves will induce them to fall to work again. Among variety of experiments, Reaumur placed a comb taken from another hive in a small one which was empty; in this comb were royal cells: he put in working bees and drones, and it succeeded: without this expedient they would not have worked; it is well known that
without

without a queen they will not work. It is seldom that they swarm except when the sun has warmed the air: that is, from ten or eleven in the morning till about three in the afternoon. When a hive is overstocked with bees, they cause a considerable heat in it; and if this heat is increased by the sun darting on the hive, or by some hours of hot sultry weather, the bees are not able to support it; they grow faint, and so are forced to separate in order to get air. As to the season, this depends on the too great number of bees produced. These differ in different countries; and in the same country vary from many accidents besides season.

In

In France seldom before the middle of May, or much after the middle of June.

In *swarming* they fly in such numbers as to form a cloud; at last they settle round a bough in a cluster, linked together by the legs. The queen is found alone on the same bough, and near the swarm; she soon enters the group, and so disappears from our sight. The other bees surround her royalty, and take her from our sight; the swarm is then very quiet.

A noise is often made to recall them from too great a height; throwing up sand or dust is better: the bees perhaps take it for rain; or playing an engine with water still more

effectual

effectual. When a swarm divides into two bands it is a sign there are two mothers at least; but not dividing is not a certain proof that there is but one.

Swammerdam drew the mother-bee of a swarm by one of her legs with a small bit of thread fastened to a long pole: the whole swarm immediately assembled round the end of the pole to cover the mother-bee. This swarm was carried wherever the bearer pleased in pursuit of the pole.

A man who called himself the bees' master, doubtless was in possession of the mother bee: and from the natural attachment of the bees to her, he conducted them as he pleased.

In

In spring and summer the bees need little care: one circumstance, however, to which attention must be paid, is water. Rivers, or large waters are unfavourable: the bees are liable to be drowned; and it is difficult to keep themselves steady on the margin: Reaumur would prefer the placing of water in plates or dishes opposite to the hive; and to choose such as have a slope.

Crude wax (the bread of bees) is necessary: for want of it the insects fall into disease; namely, a purging from feeding on honey alone: when there is a deficiency of crude wax, the *remedy* is a comb from another hive.

Reaumur

The interval between the entrance of one swarm and the issuing out of another, is about six weeks: eggs are laid during this time; by the hatching of these eggs, worms or maggots are produced, all of which are fed with the greatest care: these worms turn into bees; and this laying, and these perpetual births multiply the bees to such a degree, that, becoming too numerous, they at last are obliged to separate. To this is owing the issuing forth of the swarms.

A gentle humming is an indication that a swarm will sally forth soon; perhaps the next day.

There are several signs which proclaim

claim the approaching departure of a swarm.

1. When we hear a humming; and this is usually heard the evening before a sally.

2. When we perceive drones or males.

3. When the hive appears so full of bees that part of them hang in clusters, and they are heaped by thousands one upon the other on the outside.

4. But the most certain sign, which proclaims the event to be on that very day, is when the bees forbear flying into the fields, though the season seems inviting.

The sounds arise from their striking their

their wings against the air, the wings being the sole organs of their voice; for, by moving them more or less swiftly and forcibly, they beat the air.

Sometimes early swarms produce a second generation; however, they commonly do not give birth to a new swarm till the ensuing year.

From a good hive, three, four, nay five swarms, will issue one after another in the interval of five, six, or sometimes, twelve days.

The thousand males are not usually found in the city, except from the beginning of May till towards the end of July; their number is increasing daily during this interval;

after that period they almost all disappear; and in a few days more, they too will finish their life by a violent death.

HIVE.

Clean it well; rub the inward partition with herbs, the fragrance of which may be grateful to the little tenants. Bean flowers are very pleasing to bees. Balm is very agreeable. Rub the inside with honey.

These precautions are not necessary; but can do no harm.

To prevent the bees from returning to the bough where they first settled, rub it with elder leaves, nettles, and
rue;

rue; or drive them away with the smoke of burning linen.

Cold and hunger are scourges to bees; and by striving to preserve them from the former, we expose them to die by the latter. Insects sleep out the winter if it be cold in a certain degree, and require no food.

A certain degree of cold is favorable to bees; that which only pinches and benumbs them secures them from the danger of starving; that which does not pinch them may occasion their being famished; and that which is too severe is mortal.

They love to be numerous; the more populous they are, the more they are secured from cold: their

stores of honey and crude wax are to secure them from famine.

Bees die in an air, the temperature of which would be found soft enough for any other insect of our climate: for we must remember how much warmer the inside of a thronged hive is than the external air: when hives are too thinly peopled, we should make one hive of two.

The bees increase greatly the heat by motion: Reaumur tried many experiments with a thermometer.

Some bees die of cold in the spring. If they take their flight too early, they leave a hot air for one too cold; they are struck with it, and die; they cannot risk the cold singly:

thus

thus it is clear they should not be suffered to go out too soon. They pass the winter clustered, and fixed close to each other, between honey combs, at the lower part, or towards the middle of the hive: if the cold be severe they are benumbed, their strength is enfeebled, the muscles of their legs lose the contraction necessary for keeping them hooked one in the other: little clusters break away and fall to the bottom: in this state they seem dead, and may be handled.

Stopping the hives makes the bees liable to disease from close air.

A cask with dry earth, a hole opposite to the entrance of the hive,
and

and a wooden trough as a gallery, will answer. They may be fed with honey put into an earthen pan, covered with paper, pricked full of holes, and placed in the hive.

To prevent the bees from issuing out in the first fair days in spring, a small grate or lattice of iron wire, whose holes are too small for the bees to pass through, will answer: it may be made to slip like a window; and you may be guided by the thermometer; if it points to frost, do not suffer them to come forth; but the temperature of cellars they may be allowed.

A pound of honey is sufficient to supply a populous hive. Each hive

is supposed to produce two pounds of wax, and twenty of honey.

When the males appear in the spring, it is a sign of a swarm coming soon.

Raisers will sometimes prevent swarming; when late in the year it is to be wished; but if it fail, and the swarms are too weak, it is good to join two in one.

It is proper to have hives of different sizes, and proportion them to the swarms.

They do not love too wide extended a habitation, because it would be cold; and if too contracted, they will suffer from heat, and want of room for cells. When the honey-

combs almost touch the flooring, put under the hive a raiser or stand; namely, a circle made of the same materials; this tends to prevent more swarms, which would weaken the hives whence they should issue. A gentleman, who makes it his amusement to attend to bees, has lately contrived hives composed entirely of raisers well fitted to each other, and woven very closely; with a very ingenious, yet simple, contrivance for removing the bees, and taking the honey, without destroying them. It is to be hoped that he will communicate his method for the public benefit, when sufficient trial has been made to ascertain its success.

There

There are separations made by means of perforated floorings, to allow the bees to remove downwards: each flooring fixed with clay, and resting upon a second, with corresponding openings; and the hives placed upon separate stools, a little detached from each other, and allowing room for passing behind them, to make any operations more easy and safe. The hives have no door, but there is a groove in the stool on which they stand, to allow of ingress and egress.

HONEY.

Reaumur prefers new to old; that of spring or summer to what is procured

cured in autumn; white to yellow; that which froths but little; which is sweetly sour to that which is wholly sweet; that with a gentle smell to that which is strong, the latter being commonly deleterious.

Some kinds may be pernicious. Tournefort, in his voyage to the Levant, visited the place mentioned by Xenophon, where the soldiers suffered so extremely by eating honey: he is of opinion, that the plant whence the bees extracted so noxious a sort of honey, was one of the species called by the botanists chamædodendron.

The honey of mountainous countries is esteemed the best. Honey made

made from sugar will keep for years without becoming *seeded*; continuing clear, transparent, and fluid, as at first: it never thickens like true honey; the taste too is more poignant than that of true honey. Reaumur met with honey with a greenish hue.

The ancients esteemed honey a gift of the gods; a celestial dew; an emanation from the stars: it served them instead of sugar, which was unknown: they considered it as an antidote; a panacea, or universal remedy; and imagined it capable of preserving from corruption; and prolonging life.

Though the ancients imagined they perceived something divine in honey,

honey, and considered it as a venerable and sacred food, Reaumur himself does not esteem it. He says it suits few constitutions; none but phlegmatic ones; old men; and those, who by sickness or other causes, abound in gross viscous humours. But persons of a bilious complexion ought not to touch it. He allows that it heals and dries. He accounts for the change of opinion respecting honey by the difference in our manner of living, which disposes to inflammation. Many of our English physicians esteem honey a very wholesome food.

Reaumur says, "Never set bees to the north;" and asserts that a southern

southern aspect is best, in order that they may enjoy the rising sun as early, and the setting sun as late, as possible: they should be guarded from wet; and too great heat, as well as too intense cold.

Yet a gentleman of great skill and experience has found them thrive in all situations; and even prefers the north, and that in England.

Columella directs that the apiary, or bee-garden, be situated so as to face the south: that it be in a valley, that the loaded bees may with the greater ease descend to their houses: that it be near the habitations of men, on account of the convenience of watching them; and free from

noxious scents or disturbance; and surrounded by a low wall; and if possible, a running stream near it.

A country may be over stocked with bees; flowers may be too distant; bees return weary; and broils seize them; or they fall into water. In some places in France and Piedmont, the natives have constructed a kind of barge capable of containing from sixty to an hundred hives, well defended from storms, as the owners float down the stream.

A floating bee-house amply rewards their care.

In England, our rivers being less rapid, and the banks more flowery than those of most countries, such
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an employment might probably yield an easy and comfortable maintenance; whilst the advantage resulting from it would be great.

In fact, the keeping of bees is much neglected by the poor of many countries; and it would be a true act of charity to them, and beneficial to the public, to bring the lower class of people into the habit of placing hives by their cottages; it would induce them to cultivate a small piece of ground as a garden; the attention to which would perhaps keep the labourer from lounging at an ale-house; supplying at once healthful employment, innocent amusement, and easy profit.

EGYPT.

The inhabitants of Upper and Lower Egypt observed a difference of about six weeks in the climate. About the end of October the inhabitants of Lower Egypt embark on the Nile; and convey their hives to Upper Egypt; arriving when the inundation is withdrawing, the lands have been sowed, and the flowers begin to bud. They place the hives pyramidically in boats, and sail down gradually to the place of their abode; remaining so long as is necessary to allow the insects to collect all the riches. Thus, without poetical hyperbole, the flowers spring

up

up under their feet. About the beginning of February, after having travelled through the whole length of Egypt, (gathering all the rich produce of those delightful banks of the Nile), they return to their respective habitations.

Perhaps the *hist* (Isaiah v. 26, and vii. 18.) was really the sailor's whistle, and designed to direct the mariners, rather than govern the bees.

The Italians near the Po treat their bees in the same manner.

The Greeks constantly conveyed their bees every year from Achaia into Attica; and this, because at the time that the flowers in Achaia are gone,
those

those of Attica begin to blow. Other instances might be mentioned, from remote times and distant countries. To come nearer home, Mr. P—— made his bees travel like those of the Greeks in Achaia. He set up a manufactory for whitening wax, near Petiviers, in the diocese of Orleans; in that place flowers became scarce very early, few or none being seen after the corn is ripened. He then sent his bees a journey of about twenty miles, if rain had fallen; or to other places where buck-wheat was in flower. He tied a coarse cloth over each hive, and kept them as cool as he could during the journey.

Flowers have a kind of bladder, or rather

rather glands, which are so many reservoirs of a honeyish liquor; these glands, in different flowers, are differently placed, but the bees know where to find them; we call them nectarines, or honey-cups.

The trunk of the bee is a kind of tongue, which moves like those of animals which lap; it plunges, and is buried in the honey liquor, to make it pass upon its exterior surface, and, together with the case of its trunk, it forms a canal by which the honey is conveyed.

The bees never eat, except in seasons of scarcity, the honey contained in a great number of cells easily distinguished from the rest, namely, those

those termed shut, or closed store-houses.

ENEMIES.

Bees, while busied in sipping the nectar of flowers, or winging their way to them, are carried off by hornets and wasps; these are rapacious robbers. Wasps watch round a hive for a favourable opportunity to attack a laborious bee, when returning from the fields tired and loaded with wax. The bee, though armed, is often killed in a moment: the wasp, immediately after butchering, will tear open her belly and suck the whole contents.

A sparrow

A sparrow has been seen with one in each claw and one in his beak.

Weak heedless insects creep in and raise disturbance and confusion. A second kind of enemy endeavours to destroy the bees, and eat up the honey; a third levels its malice against the wax.

Slugs and snails creep in, beetles, foreign and wild bees go in quest of works nearly formed.

Hornets and wasps will seize and kill them, ripping open the bee to suck its contents.

Spiders destroy a few.

Ants, though so fond of sweet things, will inhabit close by without attempting to touch the comb.

Reaumur

Reaumur had a number fixed within the shutters of a glass hive; the insects never molested each other.

Field mice do not dare to attack the bees in summer; but in winter, when they are benumbed with cold, will enter into the hive, and devour all the inhabitants: they will destroy a populous hive in a night; devouring the head and breast.

The preventive remedy is to place little plates of tin round the holes or doors.

There is a reddish louse, the size of a small pin's head, with a body shining and scaly, as well as its six legs. These prey upon the old bees only: they live by sucking them.

They

They are most frequently found upon bees which inhabit old hives. This enemy is not important; but the enemy which singly composes the third class, is the worm, or moth, which plunders the wax.

The creature called *wax-worm*, or *wax-moth*, because of the havoc made by her in wax, is a diminutive caterpillar, the larva of a phalæna: it has sixteen legs; it spins itself a sheath of silk, a sort of gallery: the wax serves her for building and for food: the head is scaly, covered with a stout helmet, which is proof against the stings of the bees. These creatures actually make the bees forsake their hives.

The

The moth is very nimble; it can outrun a bee.

CELLS.

Sometimes bees lie easy and motionless in their cells; but the chief use is not to afford habitations. A great number contain worms; and some are stopped up: of these, some contain nymphæ, and others honey. Others again, which are open, serve as store-houses for the crude wax; as likewise for the honey given as daily food to such bees as work within; and serve as sustenance on those days when cold or bad weather prevent the bees from going out.

ROYAL

ROYAL CELL.

After the female bee has left her cell, the bees destroy it, and build ordinary ones over it; but as they leave the foundations, we plainly see that part of the comb where this happened; it being a little thicker in this place than any other, and there appearing a kind of knot upon it.

An unfinished cell for raising queen bees, weighed against others, equalled nearly an hundred: Reaumur believes one would weigh nearly as much as an hundred and fifty: they are fifteen or sixteen lines in length; oblong; the largest end uppermost, and the lower end open, till the sea-

son for closing it comes; namely, when the worm is ready for transformation.

VEGETABLES.

The glands which separate from their blood the mucilage starch or sugar, for the production and support of their different parts; or those which deposit their bitter, acrid, or narcotic juices, for their defence from the depredation of insects or larger animals; or those which secrete resin or wax, for their protection from moisture or frosts, are too small to be viewed, and can be known only by their effects: but one

of

of the most curious and important of all vegetable secretions, that of honey, is apparent to our naked eyes.

The odoriferous oils of several flowers seem to have been designed for their defence against insects. The dust of the anthers is necessary to render the plant fertile; the wax, which covers the anthers, prevents this dust from receiving moisture to injure it.

NECTARIES.

The honey of plants must be of great importance to them, if we may judge by the very curious apparatus constructed for its preservation from

rain and insects: that it is nutritious, appears from its similarity to sugar; and from its affording sustenance to such numbers of insects which live upon it solely in summer, and lay it up for winter provision.

It seems as if it were necessary that it should be exposed to the open air, and reabsorbed; for what purpose is not yet known—perhaps for the support of the stamens and pistil so essential to reproduction.

Nature has in many flowers used a wonderful apparatus to guard the nectary, or honey-gland from insects.

In the honey-suckle, the petal terminates in a long tube, like a cornucopiæ, or horn of plenty; and the
honey

honey is produced at the bottom of it. In *aconitum*, monkshood, the nectaries stand upright, like two horns, covered with a hood, which abounds with such acrid matter, that no insects penetrate it. In *helleborus*, the many nectaries are placed in a circle, like little pitchers, and add much to the beauty of the flower. In *aquilegia*, columbine, the nectary is imagined to be like the neck and body of a bird; and the two petals, standing upon each side, represent wings; whence its name of columbine; as if resembling a nest of young pigeons fluttering, whilst their parent feeds them.

No genus of the class *icosandria*
(containing

(containing the rose, the apple, and most of our eatable fruits), has any distinct nectary; but then the calyx is one leafed, and forms a commodious basis for the reception of the nectareous juice, which is frequently very discernable in it.

The crown imperial has an excavation at the base of each petal, and generally exhibits a large drop of nectareous juice.

Some species of iris have a longitudinal villous line upon the petals, as a nectary: in the lily it is a pipe or tubulous line along the middle of each petal.

In tubulous corols the nectareous juice is secreted into the tube: in many

many genera there is a horn or spur at the back of the flower, which answers this purpose of a recipient: viz. larkspur, aconite, columbine, violet, &c.

The nectary in cypripedium, ladies' slipper, is very large and inflated; the slipper is the lip of the nectary.

In parnassia, grass of Parnassus, the honey cups are little globes supported upon pillars, which are thirteen in each set.

Many insects are provided with a long and pliant proboscis for the purpose of acquiring this grateful food; as a variety of bees, moths, and butterflies: but the spinx convolvoli, or unicorn

unicorn moth, is furnished with the most remarkable proboscis in this climate. It carries it rolled up in concentric circles under its chin, and occasionally extends it to above three inches in length. This trunk consists of joints and muscles, and seems to have more versatile movements than the trunk of the elephant; and near its termination it is split into two capillary tubes. The excellence of this contrivance for robbing the flowers of their honey-cups, keeps this beautiful insect fat and bulky; though it flies only in the evenings, when the flowers have closed their petals, and are thence more difficult of access: at the same time the brilliant colours of the

the moth contribute to its safety, by making it mistaken by the late sleeping birds, for the flower it rests upon.

Besides these, there is a curious contrivance attending the ophrys, commonly called the bee-orchis, and the fly-orchis, with some kinds of the delphinium, called bee-larkspur, to preserve their honey: in these the nectary and petals resemble in form and colour the insects which plunder them; and thus it is supposed they often escape these hourly robbers.

Drosera, sun-dew, has its leaves fringed with hairs, supporting small drops or globules of a pellucid liquor, like dew, which continue even in the hottest part of the day, and in
the

fullest exposure of the sun : perhaps the acrimony of the plant resides in this secreted liquor.

In the common catch-fly, *silene*, the viscous material which surrounds the stalks under the flowers, prevents various insects from plundering the honey.

In *dionæa muscipula* (fly-trap of Venus) there is a still more wonderful contrivance : the leaves are armed with long teeth, like the antennæ of insects, and lie spread upon the ground round the stem ; and are so irritable, that when an insect creeps upon them, they fold up, and crush, or pierce it to death : if a straw be drawn along the middle of the rib of
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the leaves, as they lie upon the ground round the stem, each in about a second of time will close and double itself up; crossing the thorns over the opposite edge of the leaf, like the teeth of a spring rat-trap. In the *apodynum androscemifolium* (one kind of dog's bane) the anthers converge over the nectaries, which consist of five glandular oval corpuscles, surrounding the germ, and at the same time admit air to the nectaries at the interstice between each anther. But when a fly inserts its proboscis between these anthers to plunder the honey, they converge closer, and with such violence as to detain the fly, which thus generally perishes. An insect has

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been

been seen held fast by the end of its proboscis, and viewed with a glass struggling in vain to disengage itself, till the converging anthers were separated by means of a pin. Sometimes almost every flower has a fly in it thus entangled: they are generally caught by the trunk, but sometimes by a leg. It is not known that this plant sleeps, as the flowers remain open in the night, yet the flies frequently make their escape.

In the dipsacus teasel is another contrivance for this purpose; a basin of water is placed round each joint of the stem.

Arum muscivorum has the smell of carrion, by which the flies are invited

need

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to

to lay their eggs in the chamber of the flower; but in vain endeavour to escape; being prevented by the hairs pointing inwards; and thus perish in the flower; whence its name of fly-eater.

In *Stapelia* when the flowers are open, the foetid smell so much resembles carrion; that the common flesh fly deposits her eggs in it; which frequently are hatched into little worms; but never proceed any farther, for become flies. A rare instance, says Martyn, of an insect mistaking its instinct.

Cypripedia of South America is supposed to be of a brighter colour and larger size than that from North

America; it has a large globular nectary about the size of a pigeon's egg, of a fleshy colour, and an incision or depression on its upper part, much resembling the body of the large American spider: this globular nectary is attached to divergent slender petals not unlike the legs of the same animal. This spider is called *arana avicularia*, because it catches small birds as well as insects; and particularly the humming-bird in its strong nets. The similitude of this flower to this great spider, seems to be a vegetable contrivance to prevent the humming-bird from plundering its honey; the sole food of the genus. A bird of our own country, willow
scitæna S H wren,

when, (motacilla) runs up the stones of the crown imperial (fritillaria coronata) and sips the pendulous drops within its petals.

The importance of the nectarium, or honey-gland, in the vegetable economy, is seen from the very complicated apparatus which nature has formed in some flowers for the preservation of their honey from insects, as in the aconites, or monkshood: in other plants, instead, of a great apparatus for its protection, a greater secretion of it is produced, that thence a part may be spared to the depredation of insects. The cacalia sua- volens produces so much honey, that on some days it may be smelt at a

great distance from (the plant), Dr. Darwin once counted on one of these plants, besides bees of various kinds without number, above two hundred painted butterflies, which gave it the beautiful appearance of being covered with additional flowers.

From this outline a philosopher may catch a glimpse of the general œconomy of nature; and, like the mariner cast upon an unknown shore, who rejoiced when he saw the print of a human foot upon the sand, may cry with rapture, **A GOD DWELLS**

HERE.

ENIG-

inhabitants: it is a monarchy composed of a queen, grantees, soldiers, artisans, purveyors, of houses, streets,

ENIGMATICAL HISTORY

inhabits a palace only in her infancy. All those multitudes which you see

NEIGHBOURING NATION.

or going out, compose that populace of which one part goes in quest of forage, or returns loaded with it.

THE nation is composed of a number of cities, each governed by its separate monarch: their manners are so similar that to give an account of one is sufficient to afford an idea of the whole.

The city is well peopled, containing from sixteen to eighteen thousand inhabitants:

inhabitants: it is a monarchy composed of a queen, grandees, soldiers, artizans, purveyors: of houses, streets, magazines, and a polity. *M* The queen inhabits a palace only in her infancy.

All those multitudes which you see going or returning, entering the city or going out, compose that populace, of which one part goes in quest of forage, or returns loaded with it: some bring food into the houses, where it is deposited, or distributed gratis among the labourers: others return loaded with materials proper for building the public edifices. For the greater precaution, each labourer carries with him his lance: it would not be safe to plunder them upon the

road

road; nor would an enemy find a very favorable reception; who should take it into his head to disturb their work, or insult their city. Every labourer is at once an artizan and a soldier; armed for defence; yet they are not forward to make use of their weapons; and those who do not molest them meet with no injury.

Their method of taking repose is in the form of a garland hung together by their feet, forming a cluster; thus they suspend themselves before their houses; and, in very sultry weather, if they be too populous, even without the walls of their city.

There is no private property; the public edifices belong to the whole society;

society; some are magazines stored with provisions against a time of scarcity; and closed up; others are open magazines, for the daily food of those citizens who guard the city; in others they deposit the unwrought materials for them who work without ever stirring out; others (and they without comparison the most numerous) are destined to receive the infants; so that the buildings are either cradles or magazines: the inhabitants, as I said before, passing the night in clusters, or else in the form of a garland before their houses;

The queen is the only person of her sex; there are, perhaps, two, three, or even up to seven or eight
hundred

hundred, or sometimes a thousand males, and fifteen or sixteen thousand inhabitants of no sex, whom I will call the labourers, because they are those to whom the whole management of the family is entrusted. All these males are husbands to the queen. Sometimes there are two, three, or even four queens born, but after a season there is never more than one; and this one is so necessary, that a city cannot subsist without her.

The queen is, literally, the mother of her people, she is the soul of the city: it is she who puts every thing in action; in a city where there is no mother all languishes, all labour ceases,

ceases, and the inhabitants no longer
amass. The attachment, tenderness,
and respect which these people pay
to their queen is admirable; I cannot
give you too high an idea of that fide-
lity for their sovereign which renders
them so praiseworthy. There have
been instances of the monarch being
seized, and the whole nation were
sure to follow wherever she was car-
ried; assembling round her, and en-
closing her in on every side, they
might truly be said to move in a
mass. The mother reigns over sub-
jects who every moment know that
the good of their society demands
what they perform, and therefore they
never fail to do it; they have no oc-
casion

casion to receive orders. In this state every one, whether monarch or subject, pursues their original design, from which they never vary.

The sole office of the queen, the importance of which is known to her subjects, and which makes this mother so valuable, is to produce a numerous progeny; it is this to which she seems entirely destined, and the only title by which she lays claim to royalty. A queen, who would merit the love of her subjects, must produce from ten to twelve thousand children in seven weeks, and commonly from thirty to forty thousand in a year.

The queen is bigger than the males,
I and

and they than the labourers; though the queen is the largest person in the whole realm; she joins to this air of majesty a grave and solemn gait: I should add, that she always goes armed with a lance, of which, however, she is even more backward than her subjects to make any hostile use, being extremely pacific, and enduring much provocation before she proceeds to vengeance. Indeed, such is the mode among these people of bearing the lance, that whoever stabs another, does it at the hazard of his life, as it often proves fatal to himself, unless he has leisure to withdraw his weapon gently from the wound.

I have already mentioned that the inhabit-

inhabitants do not dwell in their houses, they neglect their own convenience for the sake of the public weal; if they build, it is only to hoard their common provision, and to bring up their youth, they contenting themselves with lodging in the streets, and places of public resort.

There is great uniformity in their buildings, their store-houses and common nurseries being all hexagonal; but the palace of the queen is of a roundish oblong form, having one end bigger than the other, and the people attend less to beauty and elegance in their apartments than to solidity; they are so studious with respect to the last mentioned article, that they

appear rude and heavy; the substance which is employed with such thriftiness in raising the hexagonal apartments, is expended with profusion in those, where the queens are to be brought up. The people are lavish when they are to build royal nurseries, in which to rear their sovereigns.

The matras on which the royal infant is placed, is of a thicker substance than what is used for common babes. This matras is at once a bed and food. After a time, when all the royal progeny are reared, the labourers destroy the nursery, and build ordinary edifices over it, but as they leave

leave the foundations we may plainly see where it has been.

These people are proverbially busy, and held forth as emblems of industry. Scarcely has Aurora darted her first rays, and gilded the horizon, when they are on their feet.

It is a pleasure to stand at the gates of the city at day break, and to behold the joy and sprightliness with which this diminutive people leave their gloomy mansion, where they had passed the night, and issue forth into the field. Our labourers work incessantly, from morning to evening; no time is lost in the spring and summer; these eat coarser food than the grandees, and are brought up hardily.

They take their way to the field at the rising of the sun, and return not home without being charged with booty for the good of the community. Not so the males, those drones of society, they go not out till eleven in the morning to take an airing and a slight repast, and return before six in the evening, so much are they afraid of cold and damps. To bear arms is not intended for the slothful and voluptuous, they have no lance. The life of these is very different from that of the rest of the community, they are exempt from all labour, to live is the only thing they have to do; a life so soft and delicate, could not be supported but by very substantial food,

food, therefore they eat nothing but what is choice and easy of digestion; they feed upon nectar.—Such beings would disgrace arms, and they wear them not. A life so soft and delicate is of short continuance, and it commonly finishes by a tragical end.

These lazy gentry are never seen with a basket, of which each labourer carries two; and they are even differently formed by nature from those useful beings who compose the majority of the tribe. Their sole employment, for six weeks, is to eat, drink, sleep, and make merry; this short time being expired, they will be extirpated, either by death, or a precipitate flight, to which they are
sentenced.

sentenced. The toils, the provisions, the harvests, the care of the habitations, belong not to them, it is the business of the labourers. These have the care of the city, collect provisions and materials, fabricate the houses, bring up the young, keep the streets clean, drive from the city strangers, and employ themselves in all those other concerns of which we have already spoken.

It must be remarked, that these labourers, though really of the neuter gender, are always spoken of as females; having premised this, I will describe a casual interview between one of our industrious citizens, and a little fabulous being called a sylph.

A CA-

CASUAL INTERVIEW.

"Where the bee sucks, there lurk I,

"In the cowslip's bell I lie,

"Merrily, merrily, shall I live now,

"Under the blossom that hangs on the bough."

THUS sang a little airy being,
cloathed with the tints of the rain-
bow, as he alighted on a flower to
rest; he had been lately dismissed
from attendance on a mortal being,
and was at leisure to rejoin his fellow-
sylphs;

"Who in the fields of purest ether play,

"And bask and whiten in the blaze of day."

Ariel,

Ariel, (so the lovely stranger was called) had not long remained there, before a winged creature, as light and airy, yet less beautiful than himself, entered one of ~~the~~ blossoms, he greeted her, but she was too intent on her errand to attend to conversation: she came to collect the honeydew, which she carried away in an invisible jar; at the same time scraping together a species of gold dust, more valuable to her than that precious metal; she had just amassed as much as she could carry in two baskets (which she always had about her) and was going to fly away, when a sudden storm obliged her to seek a retreat. Beneath the shade of a
tuft

tuft of leaves, like the summit of a palm tree, which formed a parasol, a circular row of bells offered acceptable shelter, and, whether from accident, or a disposition to be sociable, they both precipitately entered the same bell, which formed a magnificent dome; our winged female was now perfectly at leisure to listen, and her companion began a discourse. He could not but remark, that the lady was rather oddly employed: for, whether from the principle which actuated the Frenchman when he swallowed his Louis d'ors, (apprehension of being robbed) or that it was food agreeable to her appetite, she began swallowing the dust out of her baskets

kets; this excited the curiosity of Ariel, and he made abundance of enquiries on the subject.

"But now the clouds in airy tumults fly,

"The sun emerging opes an azure sky,

"A fresher green the smelling leaves display,

"And, glittering as they tremble, cheer the day."

At the first gleam of sunshine our industrious female was peeping abroad from beneath her bell, and as soon as the clouds were dispersed, she flew away; yet not without civilly telling her companion, that if he wished for farther information respecting the community of which she was a member, and would come to the plains before their city, the courtiers,

courtiers, who did little but walk about negligently before the gates, or ramble in the fields for their amusement, would have pleasure in answering any questions it might be agreeable to him to ask.

He took an early opportunity of paying his visit, but the day being fair, the plains were so thronged with citizens passing and repassing, their heads full of important affairs, that he had not courage to interrupt them; and could not help reflecting, that an idle spectator made but a silly figure among such respectable persons, he flew therefore to a neighbouring flower, there he found a lively scene—numbers of winged beings, of dif-

ferent forms, were fluttering about, or sucking the honey.

In one of the blossoms he saw an inhabitant of the neighbouring city; she was playing such antic gambols, that he could not refrain from laughter: she rolled about, turned heels over head, then stroked herself, in short, exhibited so many unaccountable pranks, that he took her for a female merry-andrew, shewing tricks to amuse the courtiers, some of whom he perceived among the throngs that were assembled. Every one will here recollect the rash censure passed upon Sir Isaac Newton, when he was detected blowing bubbles with soap and water: the censure of ignorance and

and folly often falls on useful researches. As I observed before, Ariel's curiosity was raised, he accosted one of these idle gentlemen, easily distinguished from their respectable brethren by the careless air with which they wandered over the leaves, or fluttered from flower to flower, rambling with no set purpose, and by having no baskets about them. After the first salutations, he enquired with eagerness what the busy female was about. "She is collecting vile dust, which, with infinite labour she will convey to the city in those two baskets which you see,"—replied the courtier—"but let us enjoy the beauty and fragrance of these blos-

soms, nor suffer dull business to interrupt our pleasures—' Begone dull care!' is the burden of my song; life is short, let us fill it with enjoyment; when we have satiated ourselves with sweets, we will retire together to the city, which you shall survey, and, as I am too indolent to undertake giving you an account of the polity, you shall have access to a volume (containing all those grave particulars) which is abridged from a work written by a friend of the state, M. de Reaumur*. we will, however, enter and make a tour first,

~~and then we will enter and make a tour first,~~

~~and then we will enter and make a tour first,~~

* See a short History of a Neighbouring Nation.

He

He took the stranger round the city, and seeing him stop to survey an enormous mass, which looked like a mountain; "That," says he, "is the tomb of a monster, who long since forced himself into our city, the gates were scarcely wide enough to admit him; he appeared like that dreadful engine which entered the gates of Troy filled with hostile Greeks; we soon learned that it was no host of enemies, but a single giant. He was scarcely entered, when he reared two long pliant poles, or lances; these, we were afterwards informed, are a kind of telescopes, through which he views every object.

"Having marched into the centre

of our city he halted, drew back his lances, and shrunk into the immense shield which he bore over him, and which then formed a compleat coat of mail, impenetrable to our weapons.

"We have since learned, that this creature is born with a house upon his back, which exactly fits him, and grows with his growth; indeed he encreases it as he finds occasion, using his own saliva as a cement; or, if by any accident his walls are broken, he repairs them in the same manner: an unctuous juice which issues from his body serving instead of mortar.

He carries his house wherever he goes;

goes; it is at once an habitation and castle of defence: in winter he retires within it, and closes the entrance, living secluded and immured till the spring invites him forth.

“We called a council, the enemy having withdrawn himself within his castle, out of our power, and the walls being impregnable, what was to be done?—As we understood that he was accustomed to sleep the whole winter within his fortress, it was to be apprehended, that in the darkness of our city he would repose at his ease, and, perhaps, at his pleasure rouse himself and annoy us; should he die, the stench of such a carcase would be fatal, the bulk being greatly
beyond

beyond our united force to move. Upon mature deliberation, it was determined to smear him over with the substance with which we close the crannies of our walls; which would effectually prevent all scent: so there he lies entombed, a monument of rashness in entering our territories; thus was he embalmed alive, the spices only were wanting to compleat him as a mummy."

VISIT RETURNED.

ARIEL invited the courtier to return his visit: and soon after he went. After some search our little sylph was found in a lily's bell; where, beneath an arch of unbounded magnitude, embellished with ruby and topaz, he quaffed rivers of nectar.

After the first salutations were over, they fell into conversation upon the different modes of life of their respective

respective people : with those of the neighbouring nation, you are now pretty well acquainted : and may like to hear the romance with which our little imaginary being entertained the courtiers. Suppose then that you see Ariel, who, in the words of our fairy writer—

“ His purple pinions opening to the sun,

“ Just raised his azure wand, and thus begun.”

We, said the sylph, repose under the shade of a down imperceptible to the human eye ; and, from goblets formed like so many suns, quaff nectar of the colour of gold and silver : a drop of morning dew supplies us with a thousand cascades, as it runs along the side of a leaf ; or settling at the bottom
of

of a flower, glistening and sparkling in the eye of day, it forms an unbounded lake, in which we bathe and refresh our limbs.

We dwell in tents formed by hands divine, the tapestry of which surpasses that of the silk-worm: our hangings exhale perfume more delicate than the finest artificial scents. Our queen has various palaces prepared for her reception: each built in a different form; each decorated with the most beautiful tints. These palaces are prepared for her reception by different females, who are her subjects.

Eritillaria, with a princely spirit, has erected a circular range of pavilions,

gions, shaded by majestic foliage; each pavilion forms a magnificent dome, in the roof of each globular vases of nectar hang glistening over head: in those our queen, attended by her fairy train, respires the genial air of summer; sometimes retiring within the domes; at others fluttering amid the foliage; which forms a crown of verdure; and as they sport in the rays of the sun, their wings "with quickest lustre glancing" exhibit the "bloom of light" reflecting all the colours of an iris as they strike, to use the words of the poet,

"In diff'rent lustre through the braid
"Of colours changing from the splendid rose
"To the pale violet's dejected hue."

then

then retreating to the shade, they appear

"White as the sun-shine streams through vernal clouds."

Digitalia has constructed a numerous set of tents ; suspended each above the other : these are of crimson satin beautifully variegated within : and are ever open : night and day they present a retreat : whereas the greater part of our edifices are closed at the setting of the sun : one indeed opens precisely at that period, (and thence is called the *evening* palace), the outer gates unfolding with a sound, which warns those who are prudent to retire from the approaching dews :

L

but

but, lest any sylph should be too distant to avail himself of that summons, a superb palace is opened by Cerea for our reception at night: this is truly *grand*: the size immense; and the fitting up magnificent: the walls of gold and silver, emit a perfume, denied to the sons of care, for whom the day was made, Cerea closing her gates before sun-rise.

We live on the dews of heaven; sipping nectar from the flowers: our food is divine; the gift of the gods; deposited by them in our tents and pavilions: the two last named, inaccessible to all but the night-tripping fairies, reserve their sweets for the wanderers of our tribe.

We

We, replied the courtier, live on celestial dew: our nectar is contained in cups and urns; which the human artist in vain would imitate: man himself rears our outward walls; which our own workmen finish to their taste; bestowing great cost on the royal apartment. Our queen has many palaces; in which to regale her subjects with nectar; her pavilions and domes exhibit a magnificence far surpassing all human skill: she has, to attend her pleasure, a beautiful and numerous train of cup-bearers; to mention only a few of them, and their various modes of attendance, Fritillaria suspends globular vases from her roof: Loniceas

presents her nectar in an elegant cornucopia ; *Fragaria* and *Narcissa* each in a bowl.

Parnassia attends with an elegant salver crowned with five branches of silver ; on each branch are thirteen globular vases containing nectar.

Cacalia keeps her feast still spread in such abundance, that the fragrance diffuses itself far around ; inviting passengers to taste the delicious fare.

Cypripedia has the care of a capacious palace ; like the castles of romance, it is guarded by an enormous monster, as formidable in appearance as the dragons which were fabled to preserve their treasure. A mortal being, doomed for a while to crawl

on

on that vile earth which we disdain,
 in mind soars to our bright regions,
 and, inspired with a spirit which renders him worthy to be poet-laureat to our queen, he thus describes the castle of Cypripedia:

- “ So where the humming-bird in Chili’s bowers,
 “ On murmuring pinions robs the perelent flowers;
 “ Seeks where fine pores their dulcet balm distil,
 “ And sucks the treasure with proboscis bill :
 “ Fair Cypredia, with successful guile,
 “ Knits her smooth brow, extinguishes her smile.
 “ A spider’s bloated paunch, and jointed arms,
 “ Hide her fine form, and mask her blushing charms:
 “ In ambush sly, the mimic warrior lies,
 “ And on quick wing the panting plunderer flies.”

DARWIN.

I should remark, that this terrible monster is a *life-less image*, placed at the entrance of Cypripedium to defend the palace from the depredations of robbers, but as it so nearly resembles a hideous poisonous creature, a dreadful foe to Trochilus (so the plunderer is called), the palace of Cypripedia is thus preserved from pillage.

Among the palaces belonging to our queen, one most elegant edifice appears externally like a tent of white satin; it goes by the name of the Marble Palace. A stupendous dome of alabaster, adorned with pillars fairer than ivory, on which are suspended in equilibrio rafters of gold; the palace is a hexagonal rotunda, forming

forming one magnificent apartment; along each pannel passes a tube of ivory, containing nectar: the hangings are highly perfumed.

But I will not describe her numerous palaces, only one already mentioned, *Cypripedium*, whither she retires when she chooses to be in private; it is capacious and magnificent: it would be tedious to recount all the different modes of serving the ambrosial food, on which our lovely "monarch subsists, or to enumerate the train who dip their pinions in the painted bow." In *Cypripedium*, as was before remarked, the treasure is guarded by enchantment.

Her attendants too are numerous.

Conval-

Convallarria, Gloriosa, Melissa, Potentilla, Veronica, Viola, Tilia, Rose-maria, form a splendid train.

Alchemilla attends with a verdant mantle falling in graceful folds, and elegantly fringed. Among our enemies, Dionœa holds a conspicuous place; her castle is defended by a double portcullis, of a peculiar construction; they form a palisade to a bridge, and close on the passengers, holding them as in a trap.

“ Queen of the dewy vale, Drosera treads,
“ Her moss-wove banks and rushy fringed beds;
“ As with sweet grace her snowy neck she bows,
“ A zone of diamonds trembles round her brows
“ Bright shines the silver halo, as she turns,
“ And, as she steps, the living astre burns.”

Thus

Thus is one enemy of our queen described. She is a subtle deceitful foe, for, wearing the mask of friendship, she offers what appears to be a delicious draught, bright, sparkling—but poisonous.

Ariel now interrupted the courtier's harangue. Our people are beauteous, cloathed in the purple light of love, arrayed like the bow of the skies; but the queen! oh! charming dame!—how shall I trace her features? where select the roseate hues to emulate her bloom? how describe her, when, attired in colours gay and changeable as those reflected from a prism, she stands effulgent on her pearly car and smiles? The
blushes

blushes of an evening sky, the most brilliant iris, cannot exceed the splendour of her appearance: but who can describe her throne of state? who give an idea of its decorations? in what earthly palace was any thing ever seen to compare with it? what monarch can boast of such ornaments? —Superb flagons, with long necks, from the gullets of which flow ingots of liquid gold: but I will turn from such subjects to one of higher boast, the mortal, (if mortal he be) whom I before mentioned, has surely a fairy muse—thus he sings.

Now imagine our queen summoning her nymphs.

“ Sylphs!

" Sylphs! whose fine forms impassive as the air,
" Shrink with soft sympathy for other's care;
" Who glide unseen, on printless slippers borne,
" Beneath the waving grass, and nodding corn;
" Or lay your tiny limbs, when noontide warms,
" Where shadowy cowslips stretch their golden
arms."

*Then they are described obeying
the summons—*

" Scarce bears the bending grass the moving
freight,
" And nodding florets bow beneath their weight,
" The pigmy legions darken all the plains:
" Thrice shout with silver tones th' applauding
bands,
" Bow, ere she speaks, and clap their fairy hands.
" With measured step the fairy sovereign treads,
" Shakes her high plumes, and glitters o'er the
meads;
" Round each green holly leads her sportive train,
" And little footsteps mark the circled plain,
" Each haunted rill with silver voices rings."

Then

*Then my worship is honoured with
a few lines written with a fairy pen.*

“ Quick the light gnat the airy sylph bestrides,
“ With cherub reins the flying courser guides,
“ From crystal steps of viewless ether springs,
“ Cleaves the soft air on still expanded wings;
“ Darts like a sun-beam o’er the boundless wave.”

Then again those charming lines—

“ Gay gnomes in glittering circles stand aloof,
“ Beneath a spreading mushroom’s fretted roof:
“ Swift bees returning seek their waxen cell,
“ And sylphs cling quivering in the lily’s bell:
“ Through the still air descend the genial showers,
“ And pearly dew-drops deck the laughing flow-
ers.”

* * * * *

“ Enraptured sylphs arose in murmuring crouds,
“ To air-wove canopies and pillowy clouds:
“ Each gnome reluctant sought his early cell,
“ And each bright floret closed his velvet bell.”

As

" As when at noon in Hybla's fragrant bowers,
 " Cacalia opens all her honey'd flowers;
 " Contending swarms on bending branches cling,
 " And nations hover on aurelian wing :
 " So round the goddess, as she speaks, on high,
 " Impatient sylphs in gaudy circles fly,
 " Quivering in air, their painted plumes expand,
 " And coloured shadows dance upon the land."

I allow, said the courtier, the lines to be enchanting, and that the writer may truly be stiled a *Fairy Poet*; but we too have our bards, the immortal Virgil gives a full account of our state and manners: and later authors will supply me with many quotations. These are collected and transcribed; will it be agreeable to you to hear me read them? Ariel answering in the affirmative, the courtier thus began:—

M

THE

THE BEES.

“ NOW listen, while the wond’rous pow’rs I sing,
“ And genius given to bees, by heaven’s Almighty
King.

“ They, they alone, a general interest share,
“ Their young committing to the public care;
“ And, all concurring in the common cause,
“ Live in fix’d cities, under settled laws:
“ Of winter mindful, and inclement skies,
“ In summer hoard for all the state supplies.
“ Alternate some provide the nation’s food,
“ And search it o’er each forest, field, and flood.
“ Some for the comb’s foundations gather glew,
“ And temper gums with daffodil’s rich dew.

“ Then

“ Then with nice art the waxen arches bend,
 “ Or with nectareous sweets the fret-work cells
 distend.

“ Some by joint compact, at the city's gate,
 “ Intent and watchful of heav'n's changes, wait.

“ Examine ev'ry motion of the skies,
 “ What showers approach, what storms or winds
 arise;

“ Or ease the burden'd lab'rer's limbs, or drive
 “ The drones, a race of sluggards, from the hive.

“ The crowded dome with toil intensely glows,
 “ And from the breathing sweets a blended fra-
 grance flows.

“ Each knows his task; the old their towns attend,
 “ Shape their nice cells, their doedal works defend:
 “ But late at evening, those of youthful prime,
 “ Return fatigu'd, their thigh surcharg'd with
 thyme.

“ They prey on arbutes, willow-buds devour,
 “ Sweet cassia, and the saffron's golden flower;
 “ From fruitful limes suck rich mellifluous dew,
 “ And seek soft hyacinths of purple hue;
 “ All rest together, all together toil,
 “ At morn they rush abroad the flowers to spoil;

" When twilight evening warns them to their
home,
" With weary limbs and heavy thighs they come,
" And crowd about the gate, and mix a drowzy
hum,
" At last into their inmost chambers creep,
" And silent lie dissolv'd in balmy sleep.
" When east winds blow, or gathering rains im-
pend,
" The skies they trust not, nor their flights extend ;
" But drink of streams that flow their city nigh,
" Work near their walls, and short excursions try :
" On rugged rocks, oft as abroad they fly,
" They tear their wings, sink with their loads and
die.
" Such love of flowers inflames their little hearts,
" So great their glory in these wond'rous arts.

THE QUEEN.

" The state united stands while she remains,
" But, should she fall, what dire confusion reigns !
" Their waxen combs, and honey, late their joy,
" With grief and rage distracted, they destroy :

" She

" She guards the works, with awe they her surround,
 " And crowd about her with triumphant sound.
 " Her frequent on their duteous shoulders bear,
 " Bleed, fall, and die for her in glorious war."

" ——— to their toils in early summer run,
 " The clus'tring bees, and labour in the sun:
 " Lead forth in colonies their buzzing race,
 " Or work the liquid sweets, and thicken to a mass.
 " The busy nation flies from flower to flower,
 " And hoards in curious cells the golden store,
 " A chosen troop before the gate attends,
 " To take the burdens, and relieve their friends
 " Warm at the fragrant work, in bands they drive
 " The drone, a lazy robber, from their hive."

" Tell me, ye studious, who pretend to see
 " Far into nature's bosom, whence the bee
 " Was first inform'd her vent'rous flight to steer,
 " Through trackless paths, and an abyss of air?
 " Whence she avoids the slimy marsh, and knows,
 " The fertile hills, where sweeter herbage grows,
 " And honey-making flowers their op'ning buds
 disclose ;

" How from the thicken'd mist, and setting sun,
" Finds she the labour of her day is done?
" Who taught her against winds and rains to strive,
" To bring her burden to the certain hive;
" And through the liquid fields again to pass,
" Duteous, and heark'ning to the sounding brass?

" The careful insect, 'midst his works I view,
" Now from the flower exhaust the fragrant dew,
" With golden treasure load his little thighs,
" And steer his distant journey through the skies;
" Some against hostile drones the hive defend;
" Others with sweets the waxen-cells distend:
" Each in the toil his destin'd office bears,
" And in the little bulk a mighty soul appears,

" When golden suns appear,
" And under earth have driv'n the winter year;
" The winged nations wander through the sky,
" And o'er the plains and shady forests fly;
" Then,

“ Then, stooping on the meads and leafy bowers,
 “ They skim the floods, and sip the purple flowers;
 “ Then work their woven lodgings in their hives,
 “ And labour honey and sustain their lives.”

“ Here their delicious task the fervent bees
 “ In swarming millions tend; around, athwart,
 “ Through the soft air the busy nations fly,
 “ Cling to the bud, and with inserted tube
 “ Suck its pure essence, its ethereal soul.
 “ And oft, with bolder wing, they soaring dare
 “ The purple heath, or where the wild thyme grows,
 “ And yellow load them with the luscious spoil.”

“ As when the bees their waxen town forsake,
 “ Careless in air their wand’ring way they take:
 “ No more in clust’ring swarms condens’d they fly,
 “ But fleet uncertain through the various sky;
 “ No more from flowers they suck the liquid sweet,
 “ But all their cares and industry forget.

“ Then,

" Then, if at length the tinkling brass they hear,
 " With swift amaze their flight they soon forbear :
 " Sudden their flowery labour they renew,
 " Hang on the thyme, and sip the balmy dew.
 " Mean time, secure on Hybla's fragrant plain,
 " With joy exults the happy shepherd swain ;
 " Proud that his art had thus preserv'd his store,
 " He scorns to think his homely cottage poor."

" Hark, the bee winds her small, but mellow horn,
 " Blithe to salute the sunny smile of morn,
 " O'er thymy downs she bends her busy course,
 " And many a stream allures her to its source.
 " 'Tis noon, 'tis night :—that eye so finely wrought
 " Beyond the search of sense, the soar of thought:
 " Now vainly asks the scenes she left behind,
 " Its orb so full, its vision so confin'd !
 " Who guides the patient pilgrim to her cell ?
 " Who bids her soul with conscious triumph swell ?
 " With conscious truth retrace the mazy clue
 " Of varied scents, that charm'd her as she flew."

A KEY

KEY

TO THE

FABULOUS HISTORY.

AIRY BEING, a sylph, or fairy.

Winged creature, a working bee.

Invisible jar, one of the stomachs of the bee,
destined to convey honey.

Gold dust, the dust, or farina, on the anthers of
a flower ; of this wax is made.

Baskets, cavities in the hinder legs of a bee ; in
these they convey the dust.

Retreat beneath the shade, descriptive of the
crown imperial.

Swallowing the dust, it is in her stomach that the
bee converts the dust into wax.

Community, bee-hive,

Courtiers,

Courtiers, drone-bees, which never work.

Plains, space before the hives.

Citizens, working bees.

Antic gambols, the bee rolls herself in a flower to collect the dust, which she brushes off with her hinder feet, and then deposits it in her baskets.

Idle gentlemen, drones.

No baskets; the drones, not destined to labour, have not those hollows called *baskets*.

Enormous mass, a snail; the story is related as a certain fact.

• *Lily's bell*, a fairy description.

Tents formed by hands divine; flowers.

Fritillaria, crown imperial.

Globular vases of nectar; at the base of each petal hangs a drop of honey.

Digitalis, fox-glove.

Evening palace; evening primrose, which bursts with a considerable sound.

• *Cereas*; cactar grandiflorus, or cereus. The flower is nearly a foot in diameter; the inside

side of the calyx is a splendid yellow, and the numerous petals of a pure white; it begins to open about seven or eight, and closes before sun-rise; it emits a most fragrant odour for a few hours during the night.

Celestial dew, honey; truly a gift from above.

Nectar, honey.

Cups and urns, nectaries, or honey cups of *Cup-bearers*, flowers.

Fritillaria, crown imperial; the drops hanging at the base of each petal are curious: the willow-wren creeps up the stalk and feeds on them.

Louicera, honey-suckle; each separate corol has a drop of honey at its base; the blossom terminating in a long tube, like a cornucopiæ.

Fragaria, strawberry; the honey contained in the calyx, as in the rest of the class icosandria.

Narcissa;

Narcissa; in narcissus, the honey-cup in the middle of the blossom is distinct.

Parnassia; grass of Parnassus; the honey cups of this flower are little globes, each supported upon a pillar, thirteen in each place.

Cacalia; this plant abounds so much in honey that it may be perceived at a distance.

Cypripedia, ladies' slipper.

Cypripedium, her palace.

The species from South America is large, and has its nectary resembling a spider.

Trochilus, humming-bird; called honey-sucker, from its food being honey solely.

Marble palace, white lily.

Rafters of gold, the anthers.

Tubes of ivory containing nectar; the honey is contained in a tube running along the petals.

Convallaria, lily of the valley.

Gloriosa, superb lily.

Melissa, balm.

Patentilla, silver weed.

Veronica,

Veronica, bird's eye.

Viola, violet.

Tilia, lime.

Rosemaria, rosemary.

Alchemilla, ladies' mantle ; the leaf is curiously folded, or plaited, like a fan, and delicately fringed.

Drosera, sun-dew ; this is fringed, and at the point of every thread of this erect fringe stands a pellucid drop of mucilage, the whole resembles a ducal coronet ; this prevents small insects from infesting the leaves : it is a kind of fly-trap. Some suppose the honey of this plant to be poisonous.

Dionæ muscipula, fly-trap of Venus ; here the leaves surrounding the stem are perfect spring-traps, armed with sharp teeth, like those of a rat-trap.

Apocynum androsæmifolium ; in this flower the anthers form a fly-trap.

FINIS.

THE Bee just raised to life, without a teacher,
skilfully forms her cell.

The sage's art is known to her: she has discovered the most capacious form, and the best division of space.

Without scale or compass, she nicely measureth her work, and with great care strengtheneth its foundations.

She layeth her foundations in the upper part: she buildeth downwards, even unto the ground: and exquisitely finisheth her work; surpassing the art of man.

With its trunk it surpasseth the art of the chymist; it extracteth from flowers the most delicious sweets.

HYMNS TO THE SUPREME BEING.

THE Bee just raised to life without a teacher,
skilfully forms her cell.

The sage's art is known to her: she has dis-
covered the most spacious form, and the best
division of space.

Without scale or compass, she nicely mea-
sures her work, and with great care strength-
ens its foundation.

She layers her foundation in the upper part:
she builds downwards, even into the ground;
and exquisitely finishes her work; surpassing
the art of man.

With its trunk it supports the art of the
chymist: it extracts flowers, the most
delicious sweets.

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Errata.

Page 2, line 13, after *use*, for period—*semicolon*.

- 6,.... 13, for where read *whose*.
- 8,.... last, for eggs read *legs*.
- 9,.... 11, for what read *that*.
- 36, catch-word, for Reaumur, read *The*.
- 52, line 6, for broils read *birds*.
- 68,.... 5, for basis read *basin*.
- 72,.... 9, for muscipula, read *muscipula*.
- 77,.... 1, for stones read *stems*.

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